

**Natural Resource Restoration Project Proposal for the  
Southeast Missouri Lead Mining District**

**Frederick Creek Ranch  
(*part of former Pigman Ranch*)**

*Eleven Point River, Oregon County, Missouri*

**Submitted by the Missouri Department of Natural Resources**

**Revised December 2015**



## **Introduction and Background**

The federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) authorizes claims for “damages for injury to, destruction of, or loss of natural resources” as a result of the release of a hazardous substance. 42 U.S.C § 9607(a)(4)(C). Any compensation received as a result of resolving a claim for natural resource damages must be used for “the restoration, rehabilitation, or replacement or acquisition of the equivalent of” any lost natural resources or their services. 42 U.S.C. § 9611(i). This CERCLA process is referred to as natural resource damage assessment and restoration (NRDAR), the goal of which is to compensate the public for the loss of resources and their services resulting from a release of a hazardous substance.

### **Missouri Trustees and the Trustee Council**

CERCLA, and its implementing regulations, designated state and federal authorities to act on behalf of the public as trustees for natural resources, including supporting ecosystems, belonging to, managed by, controlled by, or appertaining to such state, or by the United States. 42 U.S.C. § 9607(f); 40 C.F.R. § 600 and § 300.605. Under this authority, the Governor of the State of Missouri has appointed the director of the Missouri Department of Natural Resources (MDNR) as the designated state trustee. The U.S. Fish and Wildlife Service (FWS) is acting as the trustee on behalf of the U.S. Department of the Interior in the Southeast Missouri Lead Mining District (SEMOLMD). The U.S. Forest Service is acting as the trustee on behalf of the U.S. Department of Agriculture (collectively the “Trustees”). The Trustees formed a Trustee Council by a Memorandum of Understanding. The Trustee Council coordinates activities for both assessing injuries to natural resources and their services and the restoration, replacement, rehabilitation or acquisition of the equivalent of the lost natural resources and their services upon receipt of compensation from potentially responsible parties.

### **Restoration Plan**

In 2009, MDNR and FWS successfully resolved a claim for natural resource damages against the American Smelting and Refining Company (ASARCO) resulting in the recovery of approximately \$41 million for the SEMOLMD. Since that time, the Trustees have settled several other similar natural resource damages claims within this area, recovering over \$1 million from a settlement with Teck American Incorporated and DII Industries, LLC. (relating to operations at the Magmont Mine and Mill) and over \$7 million from the Freeport McMoRan settlement, involving Cyprus Amax Minerals Company and Missouri Lead Smelting Company (relating to operations at the Buick Smelter Site). Pursuant to CERCLA, the Trustees developed the Southeast Missouri Ozarks Regional Restoration Plan (SEMORRP) which provides a process framework that governs the approach for restoration project identification, evaluation, selection and implementation. 42 U.S.C. § 9611(i). (the SEMORRP is available at <http://dnr.mo.gov/env/hwp/sfund/docs/nrd-final-semorrrp.pdf>.) As part of the restoration process, and depending on settlements, an agency member of the Trustee Council may submit proposal(s) for restoration projects to be evaluated by the larger Trustee Council in accordance with the factors discussed in the SEMORRP.

### Project Proposal

In its role as a Trustee, MDNR submits the following restoration project proposal to the Missouri Trustee Council. The proposed restoration action is to purchase 2,463 acres of the approximately 2,690 acres of property commonly referred to as the Frederick Creek Ranch using a portion of the NRDAR funds recovered from the ASARCO settlement as means to acquire the equivalent of natural resources and their services lost as a result of releases of hazardous substances. Figure 1 approximately depicts the acreage MDNR proposes to acquire. MDNR proposes holding title to the property pursuant to its statutory authority to accept and acquire lands. § 253.040 RSMo. A detailed budget is located at the end of this proposal.

MDNR's ability to manage this property consistent with its management goals and objectives closely parallels the goals of NRDAR and provides a compelling case for acquisition.

### Prioritization of Project

MDNR requests the Trustee Council consider this proposal with the context that other portions of the former Pigman Ranch may also be available for acquisition in the near future, including the parcel currently owned by Buildings for Babies Foundation, located north of the Frederick Creek Ranch property. See Figure 1. The Eleven Point National Scenic River flows through these properties. As one of the first of eight rivers initially designated under the federal Wild and Scenic Rivers Act almost 50 years ago and the only river in Missouri designated under this act, this restoration opportunity secures additional protection consistent with the goals of the act and gives the State of Missouri its first opportunity to protect and enhance this national treasure. MDNR has prioritized acquisition of adjoining tracts for a number of reasons, including:

- These large, contiguous tracts greatly exceed in size anything else that has appeared on any list of available properties within the SEMORRP boundaries. The properties provide an opportunity for significant ecological lift and the Eleven Point River connects these properties with other aquatic resources. There is also an unmatched opportunity for expansion to adjoining properties creating a benchmark property for ecological benefit and park stewardship.

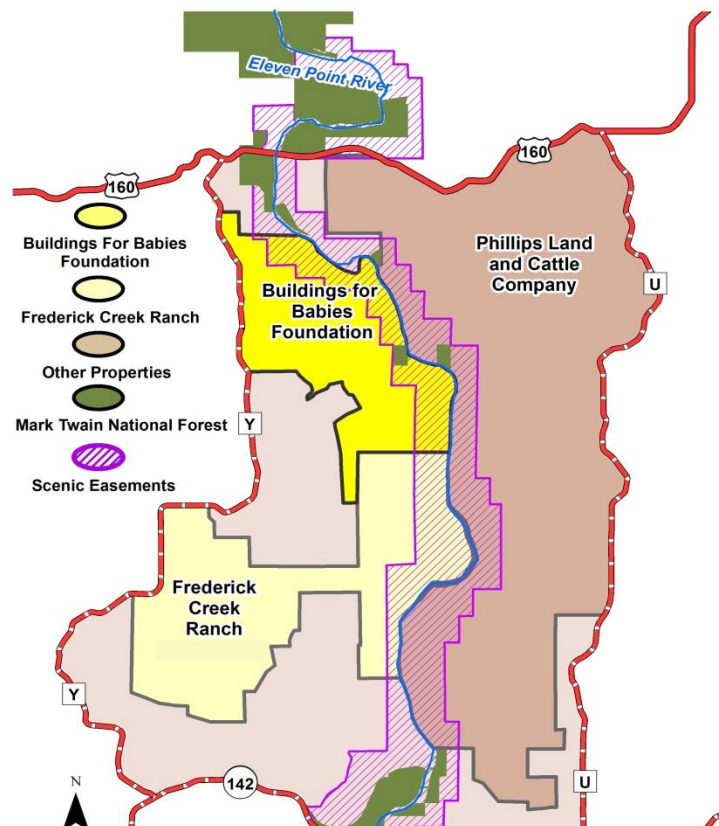


Figure 1: Aerial view of proposed acquisitions shaded in yellow tones; desired but off-market tract shaded in brown.

- The properties provide a significant opportunity for meaningful restoration that will benefit multiple species, including migratory birds. The opportunity to substantially improve bird habitat on the properties is clear and MDNR's Missouri State Parks division has a history of accomplishing similar restoration activities at other state park properties over the last half century, prime examples of which are Cuivre River and Knob Noster State Parks. Following acquisition, MDNR will assess the natural resources of the property, determine restoration needs, and create a specific resource management plan. (MDNR will likely assess this property at the same time it assesses the Buildings for Babies Foundation property, and the resulting resource management plan will cover both parcels).
- Past and current property uses include activities that are detrimental to a broad range of natural resources. Specific to the scenic easement area bordering all of the Eleven Point River along these tracts, MDNR is aware of cattle traffic within the riparian zone with evidence of cattle in the creeks and Eleven Point River (both activities are presently authorized under the scenic easement), pigs running loose from their enclosures, a large number of roads and unimproved paths being used by off-road vehicles and significant areas of streambank erosion. Under state ownership, these activities will entirely cease within the easement area, and MDNR's resource management, through active or passive measures, will allow the impacted areas to recover.
- The properties would provide a connection to nearby federal properties and to other properties along the Eleven Point River protected by easements creating significant ecological benefits beyond the extent of these properties.
- As mentioned above and discussed more specifically below, the mission of Missouri State Parks complements the scenic easement that encumbers the portions of the property directly adjacent to the Eleven Point River. MDNR, as owner of these properties, will not only adhere to restrictions of the current easement, but will also consult with the Forest Service to protect and enhance the natural resources and ecological value of both the terrestrial and aquatic environments in a manner consistent with the purposes of the Wild and Scenic designation.

### **Natural History Assessment**

*Based on several site visits and GIS data*

#### **General Description: Frederick Creek Ranch**

This is a landscape of highly dissected river hills that is about 80 percent forested. The forest occupies the steepest set of river hills facing Frederick Creek, the Eleven Point River and its tributary side hollows. The native composition of the forest has been affected by frequent logging that occurred approximately 20 years ago, except for the timberland within the scenic easement, held by the United States Forest Service (USFS). Overall it has a young, extensive, and very thick regenerating forest cover with a brushy appearance.



The uplands fall within the Howell-Oregon Counties Oak Woodland Dissected Plain Land Type Association. Historically, it contained open woodlands dominated by post oaks. Numerous very large post oaks persist in the contemporary pasture setting. But the fields are domestic grass that lack the native woodland grasses or wildflowers.

The property fronts approximately 2.5 miles of the Eleven Point River, mostly with well-developed stream bank and riverfront natural communities that fall within the scenic easement. A large bottomland field contains some floodplain and

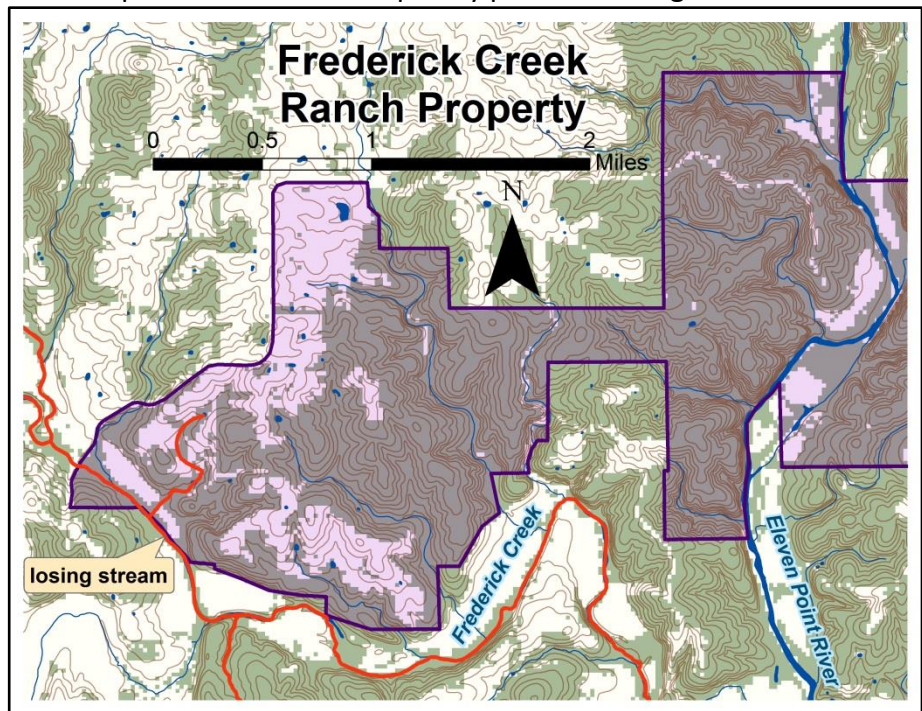


Figure 2: Frederick Creek Ranch, forest cover, losing streams marked in Orange.

riverfront forest. One major sand-bottom spring surfaces there, notable for its active sand boils (*shown in Photo 10*). Four major and several smaller tributary hollows drain through the property towards Frederick Creek or the Eleven Point River. These contain additional riparian and bottomland natural communities.

This property lies south and east of the regions' sinkhole plain. No sinkholes are mapped or noted on this property. Only two are mapped in the vicinity: One on the Phillips Land and Cattle Co. property across the Eleven Point on the east, and another to the south. Four dye trace paths cross the property, from sinkholes to the northwest that exit from two springs along the Eleven Point River to the south. Frederick Creek and several of its tributaries are mapped as losing streams (*shown in Figure 2*).

### **Conservation Value/Restoration of Ecological Resources**

The property lies within the geography of several conservation plans and designations:

*Missouri's Comprehensive Wildlife Strategy* recognizes Conservation Opportunity Areas (COA's), which are recognized as among the best places to conserve native species and habitats. The property lies within the Eleven Point River Hills COA and represents an opportunity to further those strategies which include restoring riparian natural communities, giant cane stands, Ozark hellbender populations,



Photo 1: Ozark Hellbender

shortleaf pine woodlands, glades, and bat habitat within the COA.

The Nature Conservancy's Ozark Ecoregional Conservation Assessment recognizes the Current River Landscape Conservation Area as one of the largest intact native landscapes in the Ozarks. Restorable conservation targets that occur in or around the property include deciduous woodlands, bottomland woodlands, cane breaks. Similar conservation targets exist for the species of conservation concern listed in Table 1, below. The embedded Eleven Point River Karst also recognizes the numerous subterranean aquatic stream systems and springs in the area, with their restricted and endemic species such as grotto salamanders, cave amphipods, isopods, the Salem cave crayfish, cave millipede, cavern sheet-web spider and gray bats.

The forested sections of this property lie within Audubon's Eleven Point River Watershed Important Bird Area (IBA), which designates forest interior bird habitat within the Eleven Point River Watershed as important for migrant and breeding birds. It also recognizes the local forest and riverine habitats' importance for the Bald Eagle, Cerulean Warbler and Swainson's Warbler. The values of this property towards the goals of this IBA are detailed in the migratory bird section.



Photo 2: Gray Bat

The size of this property and length of Eleven Point River frontage are tremendous conservation assets. Additionally, the property is in close proximity to the Eleven Point – Doniphan Unit of the Mark Twain National Forest and the Irish Wilderness. The amount of forest is significant, even though most of the timber is young and the overall floristic diversity appears modest. Collectively the broad range of landform and natural community types should contain a large complement of native species with good restoration potential. Some of the more heavily forested hillsides appear to be in much better ecological condition.

In its present form and condition, the natural environments offer large spaces for area-sensitive birds and habitats for grassland, woodland, forest interior and riparian bird guilds. The property also provides foraging habitat for numerous bat species, including those of conservation concern. The aquatic resources of the Eleven Point River are well known, and with miles of perennial and intermittent streams falling through this property into the Eleven Point River there should be a rich representation of Ozark stream communities and aquatic diversity.

The property is currently used as a cattle ranch. The riparian areas show localized, but significant degradation caused by the movement of cattle. Thus, restoration of the riparian areas and eroding stream banks bounding the Eleven Point River and tributaries on the property will provide enhanced protection of the aquatic species on-site and within the watershed. In addition, restoration of areas adjacent to the streams will reduce erosion

providing water quality benefits and enhanced habitat. Precipitation on the property likely recharges local springs, adding an additional benefit to the local ecological systems.

**Benefit to federal/state listed species; Missouri Species of Conservation Concern:**

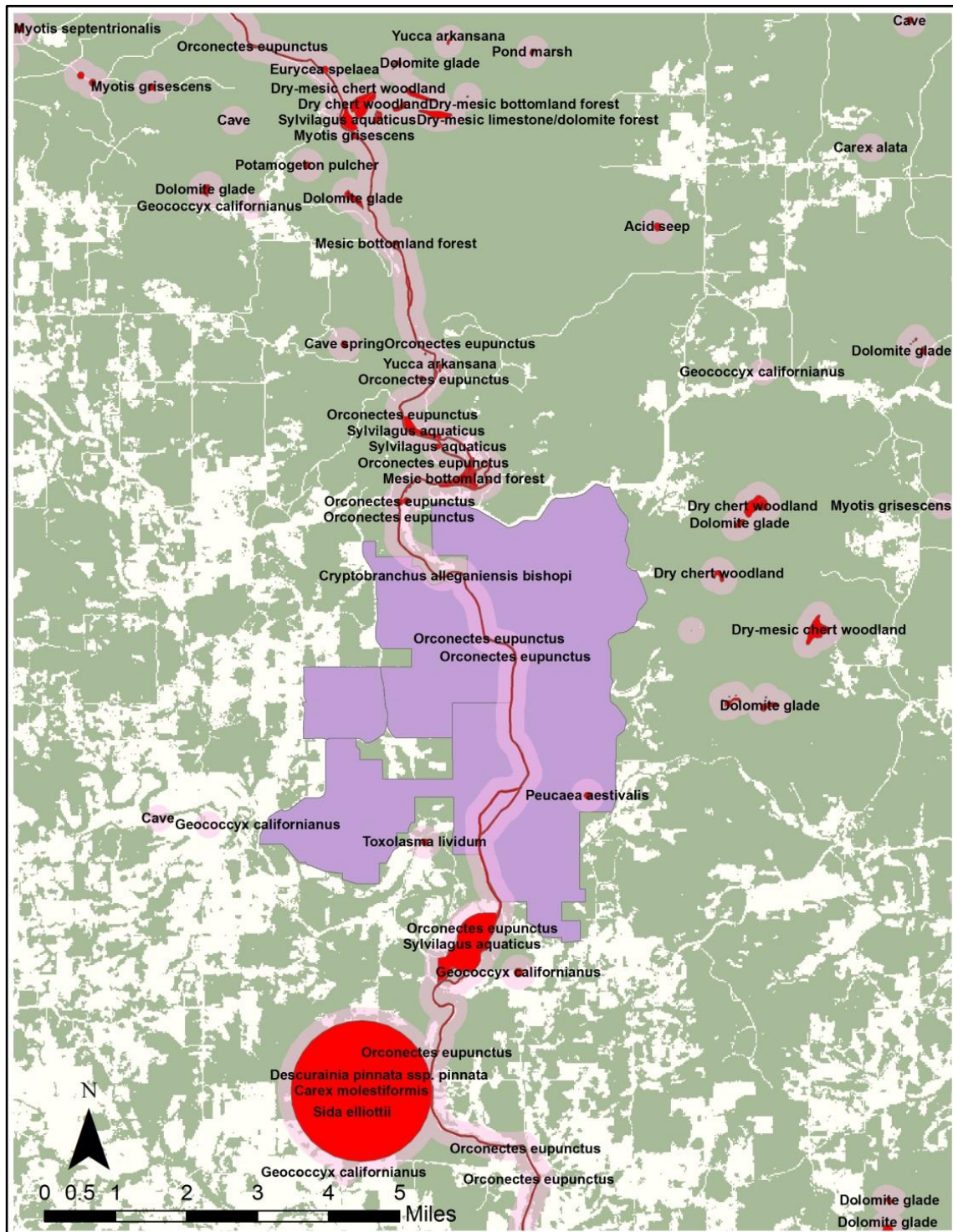
The Eleven Point River region is biologically rich and diverse, with numerous Natural Heritage Database records for state or federally listed species, and Missouri species and terrestrial natural communities of conservation concern. Most of the Heritage Database records associate with public lands such as the Eleven Point River and area caves, where biological surveys and observations are most likely to occur. Figure 3 depicts the presence of species of concern within the ten mile radius surrounding this property.

**Table 1: Species of Conservation Concern**

<b>Federal Threatened or Endangered Species</b>		
Ozark Hellbender	<i>Cryptobranchus alleganiensis bishop</i>	Endangered
Gray Bat	<i>Myotis grisescens</i>	Endangered
Northern Long-eared Myotis	<i>Myotis septentrionalis</i>	Proposed Endangered
<b>Missouri Threatened or Endangered Species</b>		
Ozark Hellbender	<i>Cryptobranchus alleganiensis bishop</i>	Endangered
Gray Bat	<i>Myotis grisescens</i>	Endangered
<b>Missouri Species of Conservation Concern</b>		
<b>Plants</b>		
Tansey Mustard	<i>Descurainia pinnata ssp pinnata</i>	S2/S3: Imperiled/vulnerable
Elliott Sida	<i>Sida elliotii</i>	S1: Critically Imperiled
Arkansas Yucca	<i>Yucca arkansana</i>	S2: Imperiled
A Sedge	<i>Carex molestiformis</i>	S2: Imperiled
Broadwing Sedge	<i>Carex alata</i>	S2/S3: Imperiled/vulnerable
Spotted Pondweed	<i>Potamogeton pulcher</i>	S2/S3: Imperiled/vulnerable
<b>Mussels</b>		
Purple Lilliput (a mussel)	<i>Toxolasma lividum</i>	S1: Critically Imperiled
<b>Crustaceans</b>		
Coldwater Crayfish	<i>Orconectes eupunctus</i>	S2: Imperiled
<b>Amphibians</b>		



Grotto Salamander	<i>Eurecea spelaea</i>	S2/S3: Imperiled/vulnerable
<b>Birds</b>		
Greater Road Runner	<i>Geococcyx californianus</i>	S3: Vulnerable
Bachman's sparrow	<i>Peucaea aestivalis</i>	S1: Critically Imperiled
<b>Mammals</b>		
Swamp Rabbit	<i>Sylvilagus aquaticus</i>	S2: Imperiled



**Figure 3: Conservation concern and endangered species recorded locations.**



### **Benefit to Migratory Birds**

The forested sections of this property lie within Audubon's Eleven Point River Watershed Important Bird Area, which designates forest interior bird habitat within the Eleven Point River Watershed as important for migrant and breeding birds. It also recognizes the local forest and riverine habitats' importance for the Bald Eagle, Cerulean Warbler and Swainson's Warbler.

With much of the property being covered in regenerating timber, it is likely the habitat supports successional forest species and likely includes priority species such as the eastern wood pewee, summer tanager, Bewick's wren, prairie warbler, brown thrasher and yellow-breasted chat. Under MDNR management this regenerating timber would be allowed to develop into natural stands of mature oak woodlands of closed canopy and open understory which would serve populations of eastern wood pewees, summer tanagers and other open woodland obligate species, several of which are declining in their range. Additionally, some of the hollows and steep riverfront areas on the property are covered in mature, closed canopy forests that are good habitat for forest interior birds. This includes migrants such as the whip-poor-will, wood thrush, black and white



Photo 3: Bald Eagle.



Photo 4: Swainson's Warbler

warbler, Louisiana waterthrush, white-breasted nuthatch which are all listed as conservation targets in The Nature Conservancy's Ozark Ecoregional Assessment for this region; and the hooded warblers and Acadian flycatchers that are noted as area-important in the Audubon Important Bird Area designation. Riverfront forests already line the Eleven Point River banks, and the adjacent floodplain under

MDNR management would be restored from its present open pasture condition (*Photo 5*), to native bottomland forest. This would recreate uninterrupted miles of forested river bottom floodplain to the landscape and benefit priority birds such as Swanson's, Cerulean and prothonotary warblers that are noted as priority species in the Audubon IBA designation.

The property's upland fields currently provide spacious grassland bird habitat, large enough to be significant breeding sites for neotropical migrant songbirds. Bachman's sparrows and greater roadrunners are recorded from nearby fields and uplands, and grassland species including meadowlarks and field sparrows are common. If restored under MDNR management to a native blend of savanna grassland and open woodlands, the high upland portions would also provide for other "Priority" or "Species of Conservation Concern" birds including northern bobwhite and prairie warbler.



Photo 5: Present condition of river bottom/scenic easement.

**Context for purchase:** The portion of the Eleven Point River bordering the property has been federally designated pursuant to the Wild and Scenic Rivers Act based on its scenic qualities, including the minimal development along the shoreline and relatively few access points. Springs



Photo 6: Present condition of uplands.

pouring from dolomite bluffs or rushing up from a vast network of underground flow systems provide a continuous source of water and beauty. In 1996 the USFS estimated that over 11,000 users floated the Eleven Point River annually. The Eleven Point is primarily popular for canoeing and fishing. Anglers can expect to find a variety of species including Rainbow trout, smallmouth bass, black bass, sucker, sunfish, pickerel, and channel catfish. In 1982 the Missouri Department of Conservation evaluated the recreational value of Missouri's major watersheds and found the Eleven Point River ranked 3rd, behind the Gasconade and Current Rivers.

Purchase of approximately 2,463 acres of the Frederick Creek Ranch property will allow incorporation of the property within the greater natural resource stewardship program of MDNR's Missouri State Parks division and would fill a geographic and natural landscape gap for Missouri State Parks system. While the scenic easement provides certain protection within its boundary, MDNR management of the property would remove cattle from the property, protect a much wider expanse of the wild scenery as well as foster regeneration of forest in the open fields, provide ecological restoration and management for the adjacent uplands, and support riparian corridor restoration benefitting the aquatic species adapted to these waters. The primary purpose for acquisition is to preserve the land in a native and natural condition, to preserve high quality natural resources and to restore the fields, bottomland pastures and regenerating forests to native systems.

The Forest Service provides river access both north (at the Riverton Access - river mile 35.6) and south (at The Narrows Access – river mile 44.3) of the property. In addition, the Forest Service offers a breadth of amenities at Boze Mill Springs and other properties. Thus, the proposed acquisition can serve as a valuable addition to the Missouri State Parks system without requiring the development of extensive infrastructure that would impact the ecological restoration goals of the project or compromise the protections for the river provided by the federal easement. In addition, the proximity of the Forest Service's Irish Wilderness provides a critical hub for the bird and other species impacted by mining and related activities that is linked to this property by the Eleven Point River corridor. This provides additional ecological value to this property and its restoration.

### **Project Benefits**

If this proposal is approved by the Trustee Council, MDNR would add the property to Missouri's state park system which has been ranked as one of the top four state park systems in the

nation on multiple occasions. It contains 87 state parks and historic sites. The mission of the state park system is to preserve and interpret the state's most outstanding natural landscapes and cultural landmarks, and to provide outstanding recreational opportunities compatible with those resources. With more than 200,000 acres available to the public, the state park system stands in a unique position to secure land for conservation and to preserve and protect the properties' important natural resources. MDNR's acquisition and management of the Frederick Creek Ranch property is fully compatible with the goal of NRDAR—to compensate the public for the loss of resources and their services resulting from releases of hazardous substances.

**Geographic Scope/Ecologic Benefit and NRDAR Nexus:**

The project lies within the prescribed restoration boundaries of the SEMORRP and is proposed to serve as a single, readily available mechanism that will, in part, compensate the public for the injuries to natural resources caused by mining related releases of hazardous substances in the SEMOLMD.

The acquisition of this property represents a landscape scale compensatory restoration project that would provide immediate compensation to the public, in the form of perpetual protection and habitat for a diverse array of flora and fauna, including most of the above-noted species of conservation concern. The streams, springs and Eleven Point River corridor communities represent substantially similar aquatic resource to those injured by the releases for which the Trustee Council recovered natural resource damages. The terrestrial environments of the Eleven Point River Oak-Pine Woodland & Forest would likewise be preserved. The upland fields offer opportunities to restore more open woodlands and savanna historically associated with the Howell-Oregon Oak Woodland Dissected Plain.

The property represents a landscape-scale restoration and preservation acquisition for a large, contiguous expanse of natural forests, woodlands, grasslands, riparian zones, streams and springs along a stretch of the Eleven Point River. Some of these landscape features are in good to excellent ecological condition, with opportunity through natural community management to improve their ecological quality, diversity and connectivity. Other areas are ecologically suitable restoration sites, to restore upland and riparian natural communities which have been affected by livestock or currently serve as hay fields and pasture. Such restoration would connect the existing forests, expand the size and diversity of continuous forested landscape on



**Photo 8: Existing threat of cattle grazing does not allow for forest regeneration, thus eliminating continued large expanses of forest.**

the property and along the Eleven Point River, and add to the extensive habitat of the adjacent National Forest lands. Restoration actions would reduce erosion and nutrient loading to the Eleven Point River while providing improved habitat for the species in the Eleven Point River and the tributaries on the property. Due to the presence of losing streams, this purchase would also protect groundwater



resources of the area, particularly any springs or seeps that occur on the property.

### **Threats:**

Property in the Eleven Point River Watershed is in increasing demand due to the abundance of natural resources protected through public ownership by state and federal governments. The land adjoining public lands has increasingly been developed along roads with housing that is affecting the resources and fragmenting habitat. Currently the Fredrick Creek Ranch is listed for sale. If not acquired and protected, it is likely that this property may be subdivided into smaller parcels and sold causing further fragmentation of habitat. Potential development includes housing, smaller farms or logging, with the most likely development being smaller farms. This would lead to further deforestation as land is moved into pasture and would likely result in increased grazing pressure and cattle presence along and within the Eleven Point River. Corresponding to these possible outcomes would be the loss of bird habitat as the forested portions are removed or fragmented, and increased nutrient input into the river with likely adverse impacts to water quality.

Fragmentation of habitat has an especially profound impact on bird species as shown by studies of the source areas of fledged members of migratory bird species and areas where predation is highest. Research in the Midwest has shown that such “source-sink” dynamics result primarily from the effects of high levels of brood parasitism and nest predation in areas where forest fragments fall below a size of approximately 4,000 hectares (10,000 acres) or where forest coverage across broad landscapes falls below 70%. The SEMOLMD sits within the Ozark Ouachita Plateau physiographic area. Maintaining the forested landscapes needed to support source populations of forest birds is probably the single most important contribution that the Ozark Ouachita Plateau physiographic area can make to the conservation of non-game birds.



**Photo 9: Cattle pasture. Restoration would improve habitat for native plants, animals, and migratory birds under MDNR ownership.**

Threats of development to these large tracts increase that fragmentation which reduces broods.

According to Partners in Flight, “relative abundance data from the Breeding Bird Survey (BBS) indicate that this physiographic area supports over 30% of the world’s breeding population of Whippoorwills, over 15% of the world’s Kentucky Warblers and Summer Tanagers, and over 10 % of the Worm-eating Warblers, Yellow-billed Cuckoos, and Acadian

Flycatchers.” Conservation efforts in this physiographic area have a proportionately greater ability to impact such species as declines or increases in areas with large percentages of a species global population have a greater effect on their global abundance than if similar rates of increase or decline occur where there are fewer individuals. If not acquired by MDNR, possible development, logging or mining could occur on the property and threaten the connectivity of

the system and the continuity of habitat for Neotropical migrants and other obligate species that depend on this system.

There are currently cattle on the land with unrestricted access to the river. This is causing stream banks to erode and degrade and impact the river's water quality and habitat. MDNR would eliminate cattle from the land, thus eliminating cattle access to the river. The elimination of cattle from the land and river would add a direct lift to the ecosystem.

If added to the Missouri State Park system, the tract would remain undeveloped with the exception of trails, parking and potentially camping for the public's enjoyment and would be maintained as the native ecosystem that historically was present. This minimal development approach is critical to protecting the existing habitat and reversing forest habitat fragmentation.

### **Project Goals and Objectives**

The goal of the project is the purchase, restoration and protection in perpetuity of natural resources including native savanna, woodlands and forest, and streams and riparian areas. The result will be open, grassy savanna and oak woodlands across the upland plain, closed oak-pine woodland and forest in the river hills, and bottomland forest in the floodplain. This property provides a unique opportunity for significant ecological improvement as it represents nearly 2,400 acres of contiguous and varied habitat that would be enhanced.

MDNR will fully document habitat types and conduct species inventories, including the presence of threatened and endangered species and species of conservation concern.

The following management and long-term stewardship goals and objectives for this property will be developed and implemented in a manner to maintain consistency with the federal easement and the overall purposes of NRDAR.

- Focus on the maintenance of existing high quality habitat;
- Contribute to the goals and strategies of regional conservation plans;
- Implement a new management plan similar to those of other state parks, including monitoring of ecosystems and representative species present on the property towards the goal of establishing self-sustaining ecosystem level improvements;
- Introduce the use of prescribed fire to promote the natural diversity of species and natural communities characteristic of this area, particularly the upland woodlands, savanna and grasslands that were its historic natural state;
- Restore bottomland forest to the riparian and aquatic areas, which is currently managed as domestic pasture and hay ground;
- Protect the springs and aquatic features within the properties;
- Protect plants and animals of conservation concern found on the property;
- Control invasive plants and animals;

- Monitor vegetation responses to management and populations of sensitive plant and animal species, particularly migratory birds and aquatic life within the adjacent Eleven Point River and its tributaries on these properties; and
- Provide access for public use, through trails and other compatible backcountry recreation.

### **Scenic Easement**

As part of MDNR's mission for Missouri State Parks, MDNR would improve and restore the riparian corridor in the scenic easement by removing roads, livestock and other agricultural uses, stabilizing eroded stream banks and restoring the riparian vegetation to its natural state. In doing so, MDNR would adhere to the easement restrictions and follow the appropriate process for achieving the restoration goals.

### **Long-Term Management**

The property will be owned by the State of Missouri and operated by MDNR's Missouri State Parks division. The property will be managed according to a written natural resource management plan for the park, with a focus on preserving the existing upland and riparian forest, and expanding its extent. Tree planting in the bottomland fields, cane and tree planting/restoration in the river bottoms and aquatic system, prescribed burning and exotic species control will be important and necessary elements of site restoration and management. This management framework will protect the property in perpetuity in a manner consistent with and supportive of the goals of NRDAR.

The Division of State Parks promotes recreational use of its properties, but will protect the natural resources of the property by reducing and restoring existing roads and ATV trails on the property. Through the placement of roads and parking, the department will manage human impacts to minimize those impacts. Over 95% of the 'off-river' portion of the property is anticipated to be left undeveloped, supporting the natural resource communities present and those that will be restored. This provides a strong framework for restoration and adherence to the NRDAR goals as included in the SEMORRP.

### **Proposed Budget**

A complete management and restoration plan, including an active restoration and management program will be developed for the property. The purpose will be to guide the existing natural vegetation towards the restoration goals, and nurture the remnant native flora and fauna. A comprehensive prescribed fire program will be essential, along with an active and aggressive program to control exotic species, brush, and non-desirable tree regeneration in the uplands and bottom fields including riparian corridors. Due to the large size and complexity of tasks, we need to have a full time natural resource steward, seasonal assistants and a full set of the necessary supplies and equipment to implement restoration.

The Frederick Creek Ranch owners have agreed to the sale price and the MDNR has signed a 12-month option contract on that property. If MDNR completes the transaction, the cost of the option will go towards the acquisition price and NRDAR funds will reimburse MDNR's costs for



the option. The Environmental Improvement and Energy Resources Authority will act as the buying agent for the state; their costs and fees are included below.

### Proposed Fredrick Creek Ranch Proposed Budget

Costs Description	Unit Cost	Amount	Total
Land purchase price	\$1,329 per acre	2,463 acres	\$3,273,327
<b>Title work</b>			
Land appraisal			\$3,343
Closing fees and EIERA costs			\$5,100
<b>Natural Resource Restoration and Management*</b>			
<b>Woodland restoration labor:</b> understory tree thinning through Americorps	\$80 per crew member per day;	4 crew members for 2-month work period, each year for three years	\$30,720
<b>Woodland restoration equipment:</b> 4 chain saws, herbicide and miscellaneous supplies:			\$2,500
<b>Native Grass Seed:</b> to start conversion of upland pastures to warm season grass savanna			\$10,000
<b>Prescribed fire equipment:</b> Slider with high-pressure water tank, 4 power blowers, 4 drip torches, 10 fire rakes, 10 flappers, 4 water packs, weather instruments, miscellaneous supplies			\$14,000
<b>Exotic Species Management:</b> 4 backpack sprayers, herbicide			\$1,750
<b>UTV for restoration, Rx fire and exotic species control</b>	\$16,000 (appx)	One	\$16,000
<b>Natural Resource Steward:</b> professional resource manager to initiate the biological inventory, woodland/savanna/grassland restoration, exotic species control and prescribed burn program	\$59,722 per year	Three years	\$179,166
<b>Seasonal Natural Resource Labor:</b> Two 1000-hr seasonal labor positions to help construct fire lines, conduct prescribed burns, assist with woodland/grassland restoration and control exotic plants	\$10,000 per year, per position	Two positions, for two 1000-hr terms each	\$40,000
<b>*Restoration and Management Total: \$294,136</b>			
<b>Total Project Cost: \$3,575,906</b>			
<b>Funding Source: ASARCO\$3,575,906</b>			

Frederick Creek Ranch Project Proposal  
December 2015



Photo 10: *(above)* Sand boils spring on Frederick Creek Ranch. Name unknown.



Photo 11: *(left)* One of several open food plots on property with forest surrounding. Abundant wildlife documented on property.

Photos 12 and 13: *(below left)* Eleven Point River view on Frederick Creek Ranch.  
*(below right)* One of several roads through property, showing young forest growth.





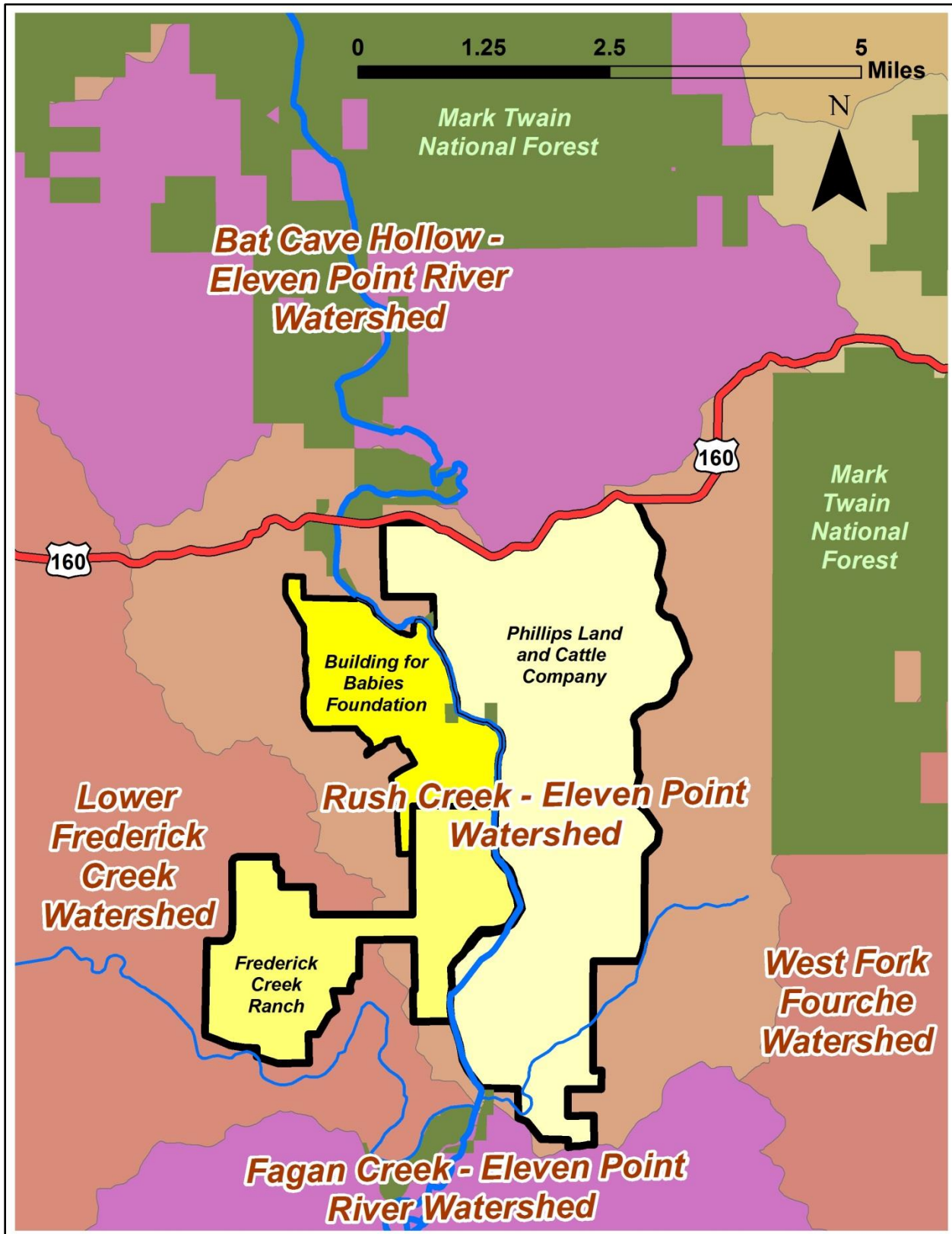


Figure 5: Association of Pigman properties with Watershed Boundaries



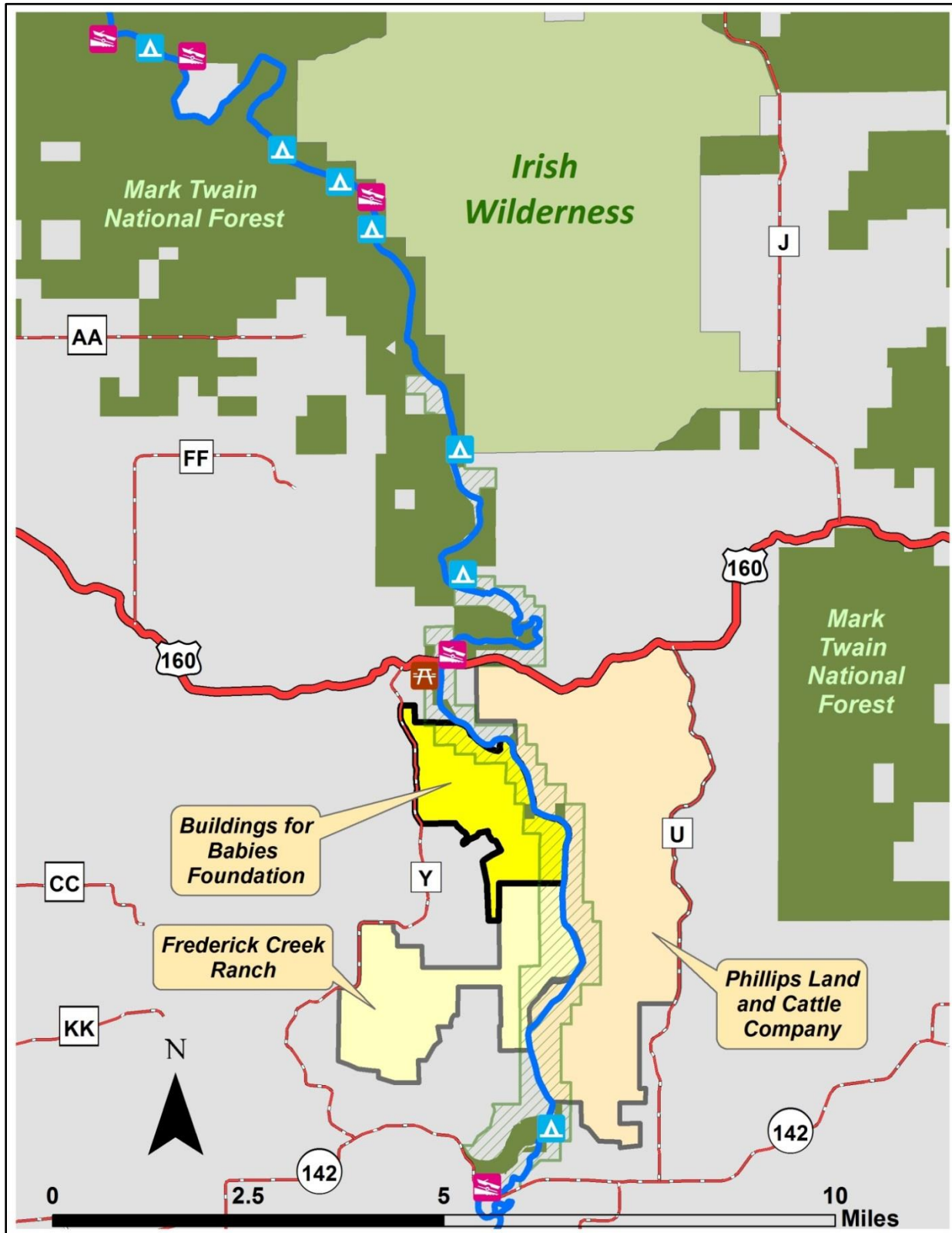


Figure 6: Association of Pigman properties with nearby USFS amenities and natural spring attractions.